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WATER SUPPLY SUMMARY AND OUTLOOK for OREGON

UNITED STATES DEPARTMENT of AGRICULTURE...SOIL CONSERVATION SERVICE
and
OREGON STATE UNIVERSITY
and
STATE ENGINEER of OREGON

Data included in this report were obtained by the agencies named above
in cooperation with other Federal, State and private organizations.

||||||| AS OF |||||
OCT. 1, 1964

UNITED STATES DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE

To Recipients of Water Supply Outlook Reports:

The climate of the cultivated and populated areas of the West is characterized by relatively dry summer months. Such precipitation as occurs falls mostly in the winter and early spring months when it is of little immediate benefit to growing crops. Most of this precipitation falls as mountain snow which stays on the ground for months, melting later to sustain streamflow during the period of greatest demand during late spring and summer. Thus, nature provides in mountain snow an imposing water storage facility.

The amount of water stored in mountain snow varies from place to place as well as from year to year and accordingly, so does the runoff of the streams. The best seasonal management of variable western water supplies results from advance estimates of the streamflow.

A snow survey consists of a series of about ten samples taken with specially designed snow sampling equipment along a permanently marked line, up to 1000 feet in length, called a snow course. The use of snow sampling equipment provides snow depth and water equivalent values for each sampling point. The average of these values is reported as the snow survey measurement for a snow course.

Snow surveys are made monthly or semi-monthly beginning in January or February and continue through the snow season until April, May or June. Currently more than 1400 western snow courses are measured each year. These measurements furnish the key data for water supply forecasts.

Streamflow forecasts are obtained by a comparison of total or maximum snow accumulation, as measured by snow water equivalent, to the subsequent spring and summer or snowmelt season runoff over a period of years. The snow water equivalent measured in selected snow courses provides most of the index to the streamflow forecast for the following season. More accurate forecasts are usually obtained when other factors such as soil moisture, base flow and spring precipitation are considered and included in the forecast procedure. Early season forecasts assume average climatic conditions through the snowmelt season.

Listed below are the Federal-State-Private Cooperative Snow Survey and Water Supply Forecast reports available for the West which contain detailed information on snow survey measurements, streamflow forecasts, reservoir storage, soil moisture and other guide data to water management and conservation decisions. Soil Conservation Service Reports may be secured from Water Supply Forecasting Unit, Soil Conservation Service, P.O. Box 2807, Portland, Oregon 97208.

PUBLISHED BY SOIL CONSERVATION SERVICE

<u>REPORTS</u>	<u>ISSUED</u>	<u>LOCATION</u>	<u>COOPERATING WITH</u>
RIVER BASINS			
WESTERN UNITED STATES _____	MONTHLY (FEB.-MAY) _____	PORTLAND, OREGON _____	ALL COOPERATORS
BASIC DATA SUMMARY _____	OCTOBER 1 _____	PORTLAND, OREGON _____	ALL COOPERATORS
STATES			
ALASKA _____	MONTHLY (MAR.-MAY) _____	PALMER, ALASKA _____	ALASKA S.C.D.
ARIZONA _____	SEMI-MONTHLY _____ (JAN.15 - APR.1)	PHOENIX, ARIZONA _____	SALT R. VALLEY WATER USERS ASSOC. ARIZ. AGR. EXP. STATION
COLORADO AND NEW MEXICO _____	MONTHLY (FEB.-MAY) _____	FORT COLLINS, COLORADO _____	COLO. STATE UNIVERSITY COLO. STATE ENGINEER N. MEX. STATE ENGINEER
IDAHO _____	MONTHLY (JAN.-JUNE) _____	BOISE, IDAHO _____	IDAHO STATE RECLAMATION ENGINEER
MONTANA _____	MONTHLY (JAN.-JUNE) _____	BOZEMAN, MONTANA _____	MONT. AGR. EXP. STATION
NEVADA _____	MONTHLY (JAN.-MAY) _____	RENO, NEVADA _____	NEVADA DEPT. OF CONSERVATION AND NATURAL RESOURCES - DIVISION OF WATER RESOURCES
OREGON _____	MONTHLY (JAN.-JUNE) _____	PORTLAND, OREGON _____	OREG. STATE UNIVERSITY OREGON STATE ENGINEER
UTAH _____	MONTHLY (JAN.-JUNE) _____	SALT LAKE CITY, UTAH _____	UTAH STATE ENGINEER
WASHINGTON _____	MONTHLY (FEB.-JUNE) _____	SPOKANE, WASHINGTON _____	WN. STATE DEPT. OF CONSERVATION
WYOMING _____	MONTHLY (FEB.-JUNE) _____	CASPER, WYOMING _____	WYOMING STATE ENGINEER

PUBLISHED BY OTHER AGENCIES

<u>REPORTS</u>	<u>ISSUED</u>	<u>AGENCY</u>
BRITISH COLUMBIA _____	MONTHLY (FEB.-JUNE) _____	WATER RESOURCES SERVICE, DEPT. OF LANDS, FOREST AND WATER RESOURCES, PARLIAMENT BLDG., VICTORIA, B.C., CANADA
CALIFORNIA _____	MONTHLY (FEB.-MAY) _____	CALIF. DEPT. OF WATER RESOURCES, P.O. Box 388, SACRAMENTO, CALIF.

WATER SUPPLY SUMMARY AND OUTLOOK for OREGON

ISSUED

OCTOBER 8, 1964

Report prepared by

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and

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CHRIS L. WHEELER

STATE ENGINEER
STATE OF OREGON

WATER SUPPLY SUMMARY AND OUTLOOK for OREGON

October 1, 1964

Irrigation water supplies have been mostly adequate in Oregon during the season just closed. Some minor water shortages were reported in Umatilla County on lands served from McKay Reservoir, on lands near Irrigon and on Butter Creek. In Malheur County a little less than the usual allotment of water was available for some lands on the Vale project.

An unusually cool summer reduced the total needs for irrigation water. Precipitation* has been spotty in its distribution with normal to above normal amounts in far eastern and southeastern Oregon, but below normal in the vicinity of Bend, The Dalles, Heppner and Pendleton.

With the end of the irrigation season, a few reservoirs including Lake Owyhee, have an excellent carry-over for next season. Total water stored** in twenty-four of Oregon's major reservoirs averages 11 percent better than last year on October 1st and 1 percent greater than the 1943-57 average storage on this date.

Streamflow** in September has averaged about 85 percent of the usual amounts except on Rogue River, Middle Fork Willamette and the Owyhee, where flows have been close to average.

Watershed soil moisture is generally below average, although somewhat better in the northeast corner of the state. Fall rains are greatly needed to recharge the watersheds before the snowpack begins to accumulate.

If the coming winter brings an average snow cover in the mountains of the state, we should have adequate water supplies next summer.

Details of the water supply situation in various Oregon regions are as follows:

Owyhee-Malheur Watersheds

Most irrigators in Malheur County had adequate water for this season's operations.

The Owyhee Project delivered the normal allotment of water and will have a carry-over supply of about 465,000 acre feet toward next year's operations.

Warm Springs and Vale-Oregon Irrigation Districts delivered near the normal allotments although some lands in the latter district received only 3.0 acre feet. Total carry-over storage water in the three reservoirs is 30,700 acre feet compared with 57,200 acre feet a year ago.

Jordan Valley Irrigation District had an excellent season and finished up with 11,800 acre feet remaining in Antelope Reservoir.

Burnt-Powder-Pine-Grande Ronde Watersheds

Irrigation water supplies in Baker, Union and Wallowa counties were adequate in 1964. Cool temperatures and unusually good summer rainfall contributed much to the good season.

Unity Reservoir contains a hold-over water supply of 4,900 acre feet, whereas Wallowa Lake has a carry-over of 19,200 acre feet, both greater than last year.

Umatilla-Walla Walla-Rock Creek-Lower John Day Watersheds

Irrigators in Umatilla, Morrow and Gilliam counties had a nearly normal season this year. Cool temperatures assisted by reducing total irrigation needs although rainfall was a limiting factor.

McKay Reservoir was forecast to provide a "short" supply for this year, but instead managed a slight carry-over of about 3,000 acre feet. Downstream irrigators in the vicinity of Irrigon reported a slight shortage of water due to a reduction in return flow in the up-stream reaches of the river. Some shortages were also reported on Butter Creek.

Good fall rains to recharge the watershed together with a good snowpack this coming winter should provide an adequate water supply for next season's operations.

Upper John Day Watershed

Most Grant and Wheeler county irrigators had adequate water supplies to provide a good irrigation season in 1964.

Watershed soils are now somewhat drier than a year ago and will require good fall rains to adequately recharge them before the snowpack begins to accumulate.

Upper Deschutes and Crooked Watersheds

1964 irrigation water supplies in Crook, Jefferson and Deschutes counties were adequate for all lands served from reservoirs. Precipitation was below normal but operators managed to end the season with good carry-over supplies in the reservoirs.

Ochoco and Prineville reservoirs have a total of 109,300 acre feet in storage compared with 121,500 a.f. a year ago.

Crane Prairie now holds 23,700 acre feet, almost the same as a year ago. Crescent Lake has 33,600 a.f. compared with 42,000 a.f. last year. Wickiup contains 20,400 acre feet now against 28,400 a.f. one year ago.

Flow of the Deschutes River at Moody has been 78 percent average (1943-57) this year in the six months, April through September, compared with 88 percent last year for the same period.

Precipitation for the water year, October 1, 1963 through September 30, 1964, has been 54 percent average at Bend, but only a trace occurred in September. Watershed soils are much drier than last year at this date and will require good fall rains to properly recharge them.

Hood-Mile Creeks-Lower Deschutes Watersheds

Irrigators in Hood River and Wasco counties have had fairly adequate water supplies this season. On April 1 a forecast of 375,000 acre feet for the six months, April through September, was published. Preliminary data indicates an actual flow of about 330,000 a.f. was obtained.

Watershed soils are probably drier than average and will require good fall rains to satisfactorily recharge the watershed. Add to this a good average snowpack and the outlook for 1965 should be satisfactory.

Willamette Watersheds

Irrigators in Willamette Valley enjoyed a runoff slightly above average, which favored a good irrigation season. Flow of the Middle Fork of the Willamette, which had been forecast at 920,000 acre feet April through September, was measured at about 960,000 acre feet.

Rogue-Umpqua Watersheds

The irrigation season in the Rogue-Umpqua area was satisfactory with streamflow occurring about as predicted. Flow of the Rogue River at Raygold, which was forecast at 975,000 acre feet April through September, was measured at 980,000 acre feet.

Storage in local reservoirs is very good and similar to last season at this date. Add to this good carry-over water supply an average snowpack this winter and the result should be a good water supply next season.

Klamath Watersheds

Although streamflows were not quite up to the amounts forecast, a good season was enjoyed by Klamath Basin irrigators and good carry-over water supplies are held in local reservoirs.

Inflow to Upper Klamath Lake, which was forecast at 600,000 acre feet for the April-September period, was measured at 505,000 a.f.

Watershed soils are drier than average but with good fall rains and an average snow-pack the basin should produce adequate water supplies for 1964.

Lake County Watersheds

Irrigators in Lake County had an adequate irrigation season with streamflow holding up later than usual in the season. Drew Valley Reservoir has an excellent carry-over of 32,000 acre feet.

Watershed soils are very dry and will need above average fall rains to recharge them. An average snowpack could then produce satisfactory water supplies.

Harney County Watersheds

Irrigators in the south part of Harney Basin had a good season, while only a few areas in the northern part had good water supplies.

The Blitzen River and Trout Creek provided adequate water for the 1964 irrigation season. Cucamonga Creek is reportedly still producing a good flow.

Silver Creek and Silvies River had poor flows this season. The Upper Silver valley had good water while lower valley irrigators, except those served from Moon Reservoir, had very little. Silvies River produced fair water supplies in the upper area around Burns before the general thaw was completed but lands below there, in the 6 to 8 mile stretch above Malheur Lake, had very little water.

Watershed soils are quite dry and will require good fall rains to recharge them adequately. If this recharge is accomplished, then an average snowpack could provide a good water season.

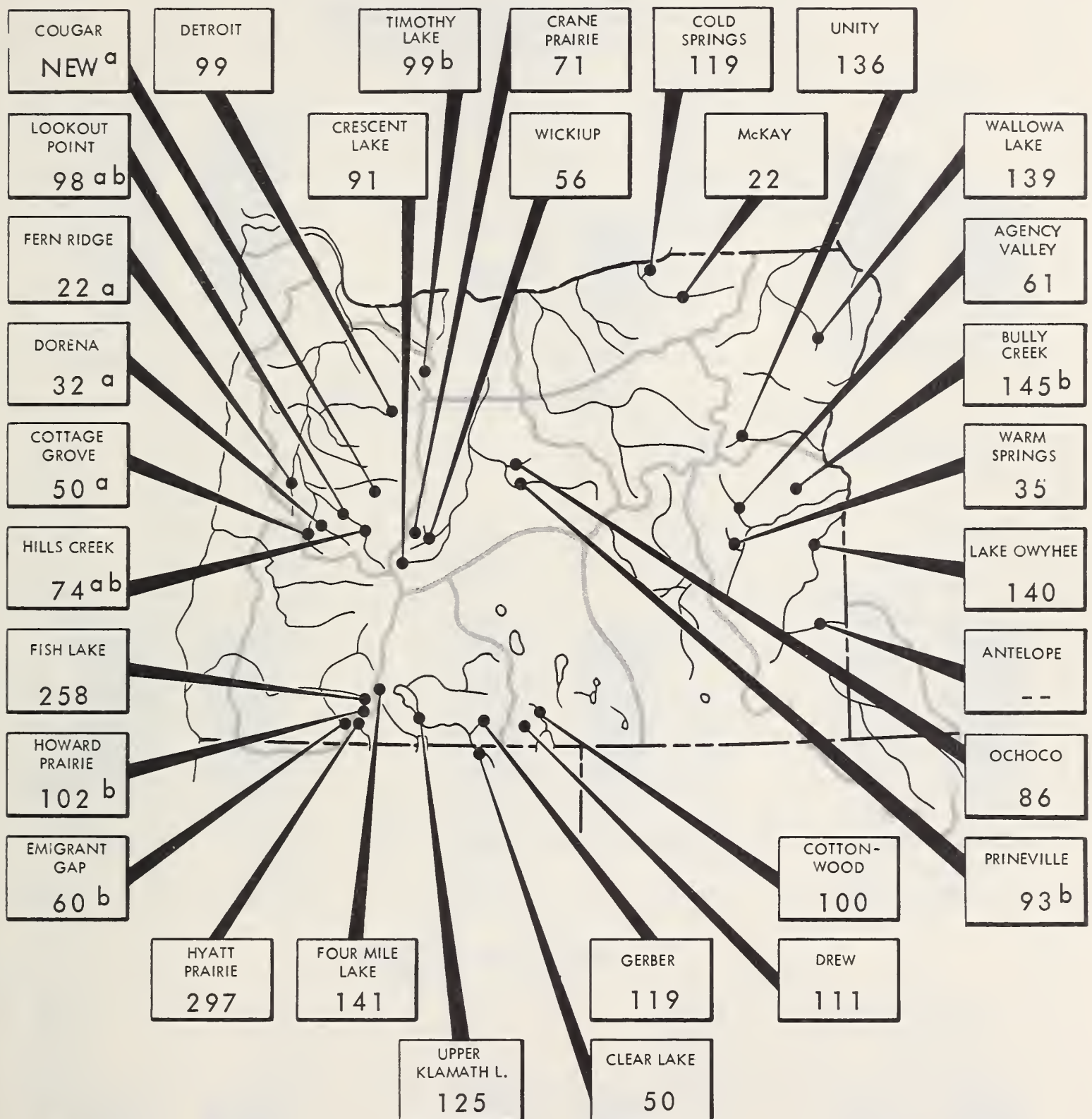
This has been one more season in which Harney County irrigators have seen a good snow-pack "disappear" with very small resulting runoff.

* Preliminary precipitation data from U. S. Weather Bureau, Portland, Oregon

** Preliminary streamflow data from U. S. Geological Survey, U. S. Bureau of Reclamation, Pacific Power and Light Co., and Portland General Electric Co.

STORAGE STATUS of OREGON RESERVOIRS as percent of 1943-57, 15 year average

OCTOBER 1, 1964



(a) Multiple purpose reservoir - space reserved primarily for flood runoff.

(b) Short record - compared with last year on this date.

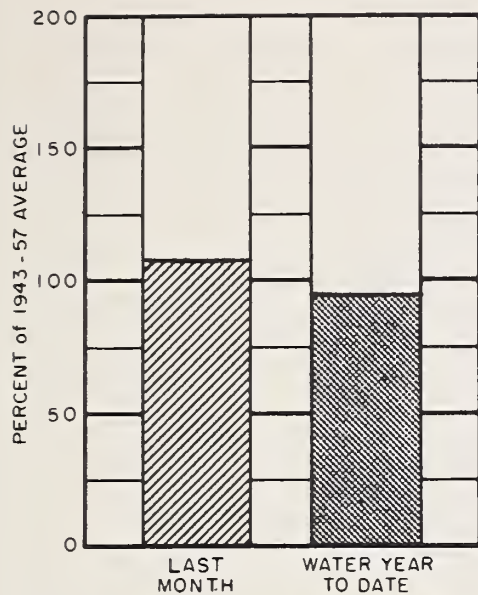
N.R. - No report.

STATUS OF RESERVOIR STORAGE, OCTOBER 1, 1964

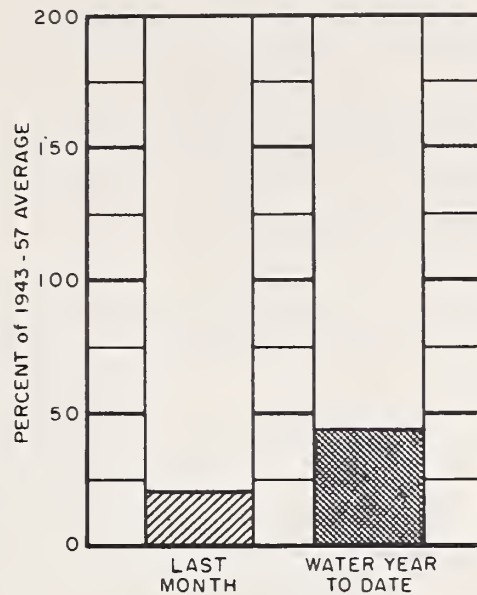
RESERVOIR	USABLE CAPACITY (Thous. A.F.)	THOUSANDS ACRE FEET IN STORAGE ABOUT OCT. 1 15 year average		
		1964	1963	1943-57
<u>UPPER COLUMBIA DRAINAGE</u>				
<u>LOWER SNAKE IN OREGON</u>				
Antelope	55.0	11.8	--	--
Owyhee	715.0	464.9	242.8	331.8
Agency Valley	60.0	9.2	11.4	15.2
Bully Creek	31.0	6.4	4.4	--
Warm Springs	191.0	15.1	41.4	43.2
Unity	25.2	4.9	2.1	3.6
Wallowa Lake	37.5	19.2	17.3	13.8
<u>LOWER COLUMBIA DRAINAGE</u>				
Cold Springs	50.0	4.3	3.9	3.6
McKay	73.8	3.0	1.3	13.5
Ochoco	47.5	14.4	20.0	16.7
Prineville	153.0	94.9	101.5	--
Crane Prairie	55.3	23.7	23.8	33.6
Crescent Lake	117.2	33.6	42.0	36.9
Wickiup	182.0	20.4	28.4	36.2
Cottage Grove	30.8	5.3	7.7	10.5
Cougar	155.2	103.2	0.0	--
Detroit	299.9	193.2	197.9	195.0
Dorena	70.5	5.9	5.5	18.4
Fern Ridge	94.2	10.3	76.6	46.4
Hills Creek	200.0	140.6	189.6	--
Lookout Point	337.2	222.7	228.3	--
Timothy Lake	61.6	61.0	61.6	--
<u>WEST COAST DRAINAGE</u>				
Fourmile Lake	16.1	9.3	9.6	6.6
Fish Lake	7.8	4.9	2.4	1.9
Howard Prairie	60.0	50.2	49.4	--
Hyatt Prairie	16.1	11.6	10.8	3.9
Emigrant Gap	39.0	9.5	15.8	0.2
Upper Klamath	584.0	345.2	309.9	275.1
Gerber	94.0	34.5	36.4	29.0
Clear Lake	440.2	97.5	91.8	195.1
Cottonwood	9.1	0.2	0.2	0.0
Drew	63.0	32.2	36.3	29.1

CURRENT OREGON STREAMFLOW

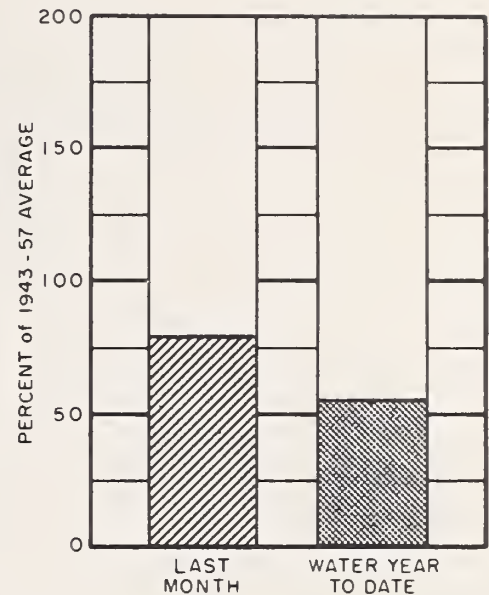
OCTOBER 1, 1964



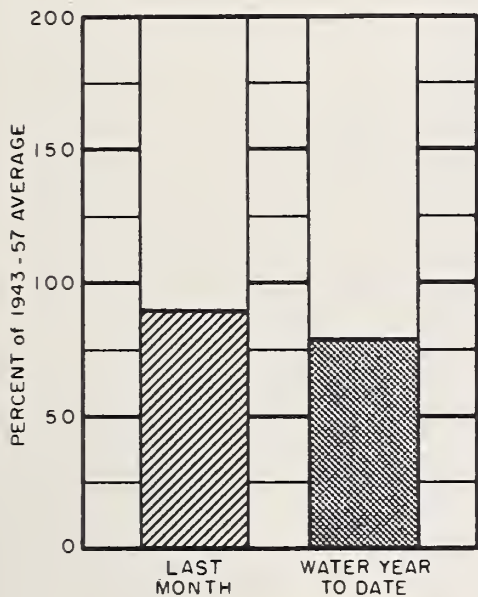
Owyhee Lake net inflow



Umatilla near Umatilla



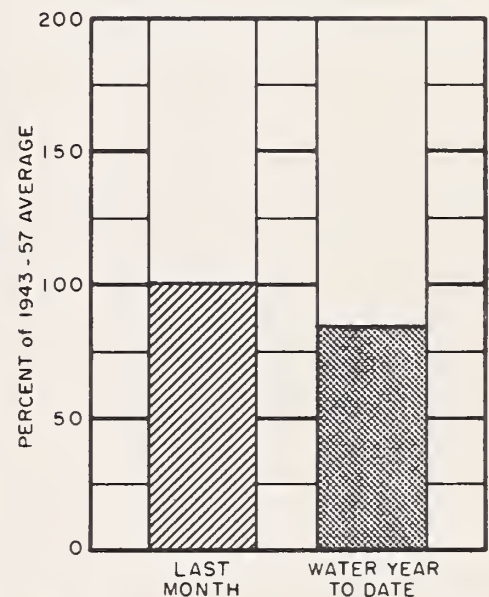
John Day at Service Creek



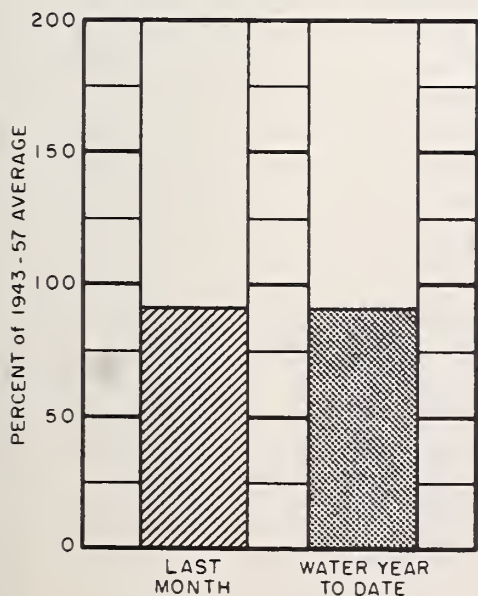
Deschutes at Moody



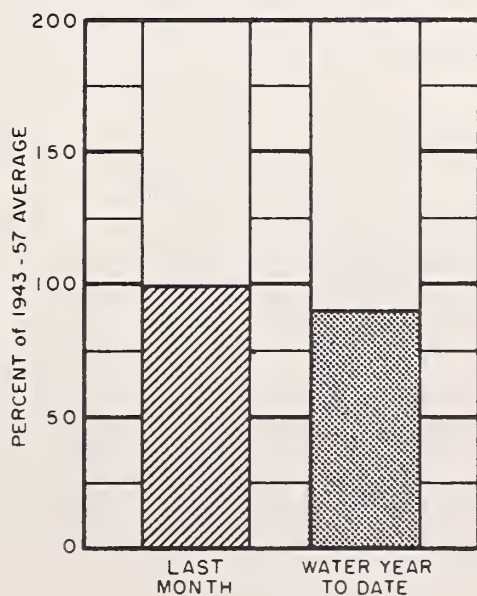
Hood and conduit near Hood River



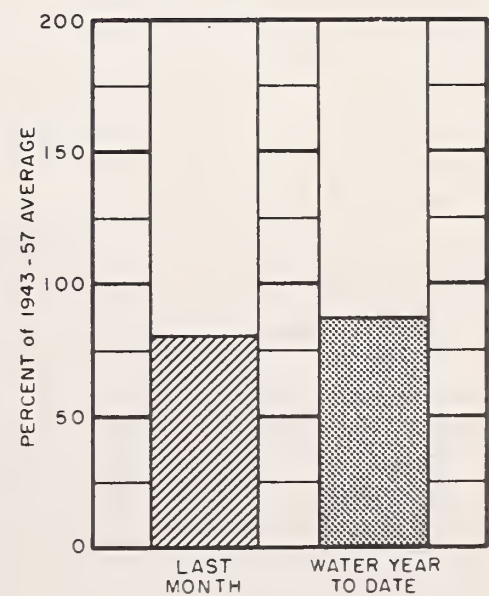
Mid. Fk. Willamette below No. Fk.



Umpqua near Elkton



Rogue at Raygold



Upper Klamath Lake net inflow

The Following Organizations Cooperate in the Oregon Snow Survey Work

STATE

- Idaho Cooperative Snow Surveys
- Nevada Cooperative Snow Surveys
- Oregon State University
- Oregon State Engineer and Corps of State Watermasters
- Oregon State Highway Engineers
- Soil Conservation Districts of Oregon

COUNTY

- Douglas County Water Resources Survey

FEDERAL

- Department of Agriculture
 - Cooperative Extension Service
 - Forest Service
 - Soil Conservation Service
- Department of Commerce
 - Weather Bureau
- Department of the Interior
 - Bonneville Power Administration
 - Bureau of Land Management
 - Bureau of Reclamation
 - Fish and Wildlife Service
 - Geological Survey
 - National Park Service
- Department of National Defense
 - Corps of Army Engineers

PUBLIC UTILITIES

- Pacific Power and Light Company
- Portland General Electric Company
- California-Pacific Utilities Company

MUNICIPALITIES

- City of Baker
- City of La Grande
- City of The Dalles
- City of Walla Walla

IRRIGATION DISTRICTS

- Arnold Irrigation District
- Associated Ditch Companies
- Burnt River Irrigation District
- Central Oregon Irrigation District
- East Fork Irrigation District
- Grants Pass Irrigation District
- Jordan Valley Irrigation District
- Lakeview Water Users, Incorporated
- Medford Irrigation District
- North Board of Control - Owyhee Project
- North Unit Irrigation District
- Ochoco Irrigation District
- Rogue River Valley Irrigation District
- South Board of Control - Owyhee Project
- Squaw Creek Irrigation District
- Talent Irrigation District
- Tumalo Project
- Vale-Oregon Irrigation District
- Warm Springs Irrigation District

PRIVATE ORGANIZATIONS

- Amalgamated Sugar Company
- The Crag Rats, Hood River, Oregon

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
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with the Snow Survey"*